San Diego County Water Authority

October 17, 2012

Attention: Water Planning Committee

Report out on October 2, 2012 and October 10, 2012 Public Meetings (Discussion)

Purpose
The purpose of this report is to provide an update on activities related to the proposed Water Purchase Agreement (WPA) between the Water Authority and Poseidon Resources (Channelside) LLC.

Background
At its July 2010 meeting, the Board approved a Term Sheet between the Water Authority and Poseidon Resources regarding the preparation of a WPA for up to 56,000 acre-feet per year from the Carlsbad Seawater Desalination Project (Project). Following the conditions precedent in the Term Sheet being satisfied in September 2011 , Water Authority staff and Poseidon have worked on developing and negotiating a proposed WPA, meeting certain conditions precedent to Board consideration of a WPA as well as conducting the required financial, technical and corporate due diligence activities. Additionally, Water Authority staff have identified and planned for improvements to the Water Authority's existing facilities required to accept and distribute desalinated water from the Carlsbad Project to member agencies.

Implementation of the Carlsbad Desalination Project by Poseidon, a 50 million gallon per day Seawater Reverse Osmosis project, involves three project agreements between Poseidon and its contractors. There are separate agreements between Poseidon and the joint venture of Kiewit Infrastructure West Co. and JF Shea Construction (Kiewit-Shea) for the design and construction of the plant and desalinated water conveyance pipeline, and between Poseidon and Israel Desalination Engineers (IDE) for the operation of the plant. IDE is also sub-contractor to Kiewit-Shea for the design of the advance water treatment processes.

Since approval of the July 2010 Term Sheet, the Board has held 32 publicly noticed meetings to discuss various aspects of the Carlsbad Desalination Project and the proposed Water Purchase Agreement. On September 27, 2012, the Water Authority released the proposed WPA to the Board and the public. Subsequent to the release of the WPA, the Water Planning Committee held two evening meetings in the community – one on October 2, 2012, at the Water Authority Headquarters in Kearny Mesa, and the other on October 10, 2012, in Carlsbad – to take public comment on the WPA and the project.

Discussion
The proposed WPA was released to the Board and the public on September 27, 2012, which began the 60-day review period for member agencies considering purchasing desalinated water from the Water Authority at full cost recovery as their own local supply. The proposed WPA builds upon the terms and conditions outlined in the July 2010 Term Sheet, and includes 18 technical appendices.

Following release of the WPA, the Water Planning Committee conducted two evening meetings in the community to discuss the need to diversify the region's supply to enhance water reliability, the role of seawater desalination in the Board approved water resources supply mix, details about the physical aspects of the Carlsbad Desalination Project, and presentation of the key terms, pricing and cost of the project. Presenters at both meetings included Water Authority staff and representatives from Poseidon and Kiewit Infrastructure, the project construction contractor. Prior to both meetings, informational stations were set up with material and displays explaining different aspects of the project facilities, the region's water resources planning efforts and supply diversification program and information about desalination technology. Both meetings were well attended and there were numerous speakers from the public. During public comments, questions were asked by some of the speakers, and there was insufficient time to answer at the particular meeting. Some of those questions and their answers are summarized below.

October 2, 2012 Meeting (Kearny Mesa Headquarters)
Approximately 135 members of the public attended this meeting. There were 30 individuals that provided public comment to the Water Planning Committee. Speakers represented organized stakeholder groups – such as trade organizations, labor unions, environmental organizations and business groups – as well as individual residents of the county. State Senator Christine Kehoe sent written testimony in support of the Project and the WPA that was read to the Committee. In addition to Senator Kehoe's written comments, of the 30 speakers in attendance, 22 spoke in support of the project and the WPA, 7 spoke in opposition, and 1 neither supported nor opposed, but asked a question.

October 10, 2012 Meeting (City of Carlsbad Faraday Operations Center)
Approximately 160 members of the public attended this meeting. Mayor Matt Hall of Carlsbad welcomed the Committee and the public to the City of Carlsbad and provided opening remarks. There were 35 individuals that provided public comment to the Board. Speakers represented a wide range of interests with several Carlsbad residents among them. Organized stakeholder groups were also represented, as were individual businesses from north county. Letters in support of moving forward with the Project were provided by Assembly Members Toni Atkins and Ben Hueso and Carlsbad resident William J. Carroll. Of the 35 speakers, 28 spoke in support of the project and the WPA, 5 spoke in opposition, and 2 neither supported nor opposed, but asked questions.

Responses to WPA related questions during Public Comment
As noted above, several speakers at both meetings asked questions and made specific comments during their remarks which could not be answered or responded to because of time constraints. These questions and some of the comments that were made by several speakers were noted by staff and are summarized with responses as follows:

Q: Who will be the lead agency and be responsible for ensuring success for the required wetland mitigation for the project?

A: The US Fish and Wildlife Service (USFWS) is the lead agency for environmental compliance and permitting for the 66 acre wetlands restoration project, which is located in the 2,600 acre San Diego Bay National Wildlife Refuge managed by the USFWS. The

California Coastal Commission (Commission) is responsible for overseeing Poseidon's implementation and compliance with the terms of the Marine Life Mitigation Plan. This plan, as approved by the Commission in 2008, requires Poseidon restore or substantially enhances 55.4 acres of marine wetlands. Poseidon subsequently agreed to increase the size of the wetlands restoration project to 66.4 acres. The MLMP establishes goals and standards to be met by the restoration project. Minimum standards include ensuring the quantity and quality of marine wetlands habitat and fish production. Upon completion of construction, Poseidon's restoration project will regularly monitored by the Commission's Science Advisory Panel for compliance with the MLMP goals and standards and subject to annual review by the Commission. Poseidon is responsible for any failure to meet these goals and standards as long as the desalination facility is operation. Upon determining that the goals or standards are not achieved, the Commission Executive Director is authorized to prescribe remedial measures, which shall be immediately implemented by Poseidon with Commission staff direction. If Poseidon does not agree that remediation is necessary, the matter may be set for hearing and disposition by the Commission.

Q: Article 9.20 of the WPA proposes administrative sanctions if Poseidon fails to comply with spills and runoff requirements. Why was the penalty set at only $500 per incident? It doesn't seem severe enough as a deterrent.

A: Since the Water Authority is not a regulatory agency, but believes it is important to ensure Poseidon compliance with all its permit obligations is achieved, administrative sanctions were included but set at $500. It is believed that if Poseidon is not in compliance with its obligations, it will be the regulatory agencies under whose jurisdiction the event falls to impose the more significant monetary penalty. It is the Water Authority's intention under the Administrative Sanctions to compel Poseidon to comply with its obligations. Most of the other items listed in this section have to do with responsiveness, timeliness in providing information, and operating the plant in an appropriate manner. The sanctions are in place as the first step in corrective behavior which if not corrected is subject to more serious actions.

Q: What is the Management Fee for Poseidon and how does it work?

Response: The Management Fee to Poseidon is a $5-$10/AF performance-based part of Poseidon's compensation for managing all elements of the project, including contractor oversight, permit compliance, public interaction and customer service requirements. If Poseidon produces and delivers acceptable water, they will receive $5 /AF for every acre-foot of water delivered. They can receive an additional $5/AF based on other factors related to performance, such as responsiveness to Water Authority requests, timely and accurate provision of information, effective remediation of operational issues , interaction with the public, Water Authority staff , member agencies and others.

Q: With its high energy usage, will the Carlsbad Desalination Project be carbon neutral?

Response: During the project permitting process, Poseidon voluntarily entered into a Energy Efficiency and Greenhouse Gas Reduction Plan. The GHG Plan requires the plant design

incorporate the highest efficiency pumps and motors commercially available, participate in reforestation of Rancho Cuyamaca State Park, and offset net greenhouse emissions associated with project operations. The desalination facility is not a source of GHG emissions, but it does rely on electricity generated by SDG&E using fossil fuels. Poseidon will offset GHG emissions associated with electricity purchases such that the project in net-carbon-neutral. Because drinking water created by the Project will offset the need for State Water Project supplies, the basis for the carbon emission reduction is the incremental increase in energy consumption above that required to convey and treat State Water Project water for use in San Diego County. Both the Water Authority and the Metropolitan Water District submitted written and oral testimony to the State Lands Commission and the California Coastal Commission verifying that desalinated water from the Carlsbad Project would replace State Water Project supplies imported to the San Diego region from the Sacramento-San Francisco Bay Delta. Funds are included in the project budget to comply with this requirement. Under the terms of the proposed WPA, Poseidon is solely responsible for compliance with all permit conditions until such time the Water Authority chooses to exercise its purchase option.

In a letter from Poseidon's attorney, Latham & Watkins, it was stated that Poseidon's Coastal Development Permit was approved and issued by the Coastal Commission and has been vested by Poseidon. The Permit or the GHG Reduction Plan is not subject to review or revision and legal challenges have been defeated in California Superior Court.

Q: What are the rates of return for Poseidon and its investors?

Response: The Water Authority has targeted a 9.45% internal rate of return (IRR) for the Equity Return Charge component of the water unit price. Poseidon's actual return on investment may be higher or lower. If the project is completed on time and budget, if it consistently meets the Water Authority's demand for desalinated water, and if it is operated efficiently, we estimate Poseidon could achieve an actual return between 10% and 13%. This range is on the low end of a market range for comparable infrastructure equity investment. If these construction and operating conditions are not met, the equity return could be substantially lower.

Q: How will the bonds be priced?

Response: The Bonds will be priced through a negotiated underwriting process similar to that used from time to time by the Water Authority in its own bond issuance. The Water Authority has selected an underwriting syndicate through a competitive RFP process. The underwriting syndicate will use a preliminary limited offering memorandum to market the Bonds to potential investors, and on the day of pricing will negotiate the purchase of the Bonds from the California Pollution Control Financing Authority (CPCFA) at then-prevailing market rates. The Water Authority and its advisors will be actively involved in all stages of marketing and pricing, and will have final approval rights over the bond interest rates.

The Bonds are expected to receive investment-grade credit ratings in the "BBB" category. It is expected that the longest-term Plant Bonds will require yields of 5.1% to 6.1% to attract investors, and that the longest-term Pipeline Bonds will required yields of 4.6% to 5.6%. For unit cost estimating purposes, Water Authority staff is using the mid-points of 5.6% and 5.1% for the Plant Bonds and Pipeline Bonds, respectively.

Q: What is the optimal water supply portfolio?

Response: The Water Authority has gone through several extensive analyses to develop the optimal water resources portfolio that ensures reliability at an affordable cost. Indentifying the optimal mix begins with the Urban Water Management Plan (UWMP), mandated by the State of California in the Urban Water Management Planning Act (Act) and updated every five years. The Act requires evaluation of opportunities for a diverse mix of water resources including conservation and water recycling. Identifying the diverse optimum mix of resources is a collaborative effort between the Water Authority and the 24 member agencies. The Water Authority works very closely with its member agencies to develop the optimal mix of resources so that the Water Authority's representation of the regional supply portfolio reflects local supplies being developed by the member agencies and is consistent with their Urban Water Management Plans.

Since its 1995 UWMP, the Water Authority has identified a mix of diverse imported and local supplies as well as aggressive water conservation to meet the region's need for reliable water supplies. In 2004, the Water Authority completed a multi-year detailed evaluation of all opportunities for supplies and facilities to serve the region through 2030. The Regional Water Facilities Master Plan identified seawater desalination as the next increment of supply along with water recycling and brackish groundwater projects developed by the Water Authority's member agencies and continued aggressive implementation of water conservation. Prior to finalizing the Facilities Master Plan, the Water Authority went through a very thorough evaluation of determining the cost, rate impact and reliability enhancements of the different supply alternatives with both the Board of Directors and a committee comprised of all the General Managers of its 24 member agencies. Both the Board and the member agencies determined that the development of seawater desalination along with the other local and imported resources identified in the 2000 Urban Water Management Plan and investments in carryover drought storage was the optimal mix of resources that balanced reliability with rate payer affordability. The conclusions were analyzed and certified in compliance with the California Environmental Quality Act (CEQA) in a Programmatic Environmental Impact Report approved in 2004. These findings were reevaluated and confirmed by the Water Authority Board of Directors in both the 2005 and 2010 Urban Water Management Plans.

Q: Why has this project taken so long to implement?

The Project Environmental Impact Report was certified by the city of Carlsbad in 2005 and subsequently nine Water Authority member agencies entered into agreements with Poseidon between 2006 and 2008. Permitting for the project was not completed until 2009. In 2010, the member agencies and Poseidon determined that it was not feasible to have a financeable

project at the pricing structure provided for in the existing agreements. The member agencies requested that the Water Authority, on behalf of the San Diego region, step in as the sole purchaser of water from the Project. In July 2010, the Water Authority Board approved a Term Sheet with Poseidon as the basis for the development of a WPA. A condition precedent to negotiation of a WPA was that the nine member agencies cancel their agreements with Poseidon. This condition was satisfied in September 2011. It took approximately a year to negotiate the WPA and complete technical, financial, and legal due diligence activities.

Q: Why isn't the Water Authority doing more for conservation?

Response: Water conservation is a core strategy in the Water Authority's multi-faceted approach to providing continued supply reliability for the San Diego region. For more than two decades, the Water Authority has been a statewide leader in the area of water use efficiency. Since 1991, the Water Authority's water use efficiency programs and initiatives have cumulatively conserved nearly 800,000 acre-feet of water. These savings were achieved through various measures, ranging from incentives on water-efficient devices, legislative efforts and outreach campaigns and programs. Overall, these efforts have led to the retrofit of more than 500,000 inefficient toilets, installation of more than 600,000 low-flow showerheads, and the distribution of more than 100,000 high-efficiency clothes washer rebates. Additional water savings were achieved through the WaterSmart Target program that is designed to help member agencies create water budgets for their irrigation customers that can lead to water savings. In 2012 alone, these efforts will offset the need for approximately 70,000 acre-feet of water, or 11% of the region's water use.

For more than two decades, the Water Authority has been the statewide leader in sponsoring legislation to improve water use efficiency. The Water Authority, a founding member and original signatory to the California Urban Water Conservation Council, was the lead sponsor of legislation over the years that modernized and strengthened urban water conservation Best Management Practices in California law. In 1991, the Water Authority sponsored legislation (SB 1224) to require that toilets sold or installed in 1994 or later use no more than 1.6 gallons per flush, a standard adopted nationally in the Energy Policy Act of 1992. The legislation also set a water efficiency standard for urinals at 1 gallon per flush. In addition, the Water Authority has championed statewide requirements for high-efficiency clothes washers (AB 1561) and water meters (AB 2572, which requires the retrofitting of water meters and volumetric billing of previously unmetered properties). The Water Authority also sponsored legislation that created a statewide task force on outdoor landscape water use efficiency (AB 2717) and that implemented the task force's recommendations (AB 1881). The Water Authority's 2007 Blueprint for Water Conservation successfully managed the transition from indoor water efficiency to conserving in the landscape, where most water use occurs. The Water Authority has been a statewide leader in promoting partnerships for outdoor water savings through behavioral changes and a cooperative effort among industry, consumers and water agencies. The Water Authority successfully lobbied the San Diego delegation to the state Legislature to vote for SBX7-7, which established a statewide goal of a 20 percent reduction in per capita water use by 2020.

To strengthen the Water Authority's ongoing commitment to supporting water conservation, the Board adopted a set of Water Use Efficiency Policy Principles. The principles provide high-level, strategic direction on the prioritization, development, and implementation of water use efficiency programs and initiatives. The policy principles include direction for the Water Authority to work cooperatively with its member agencies to implement and administer regional programs, sponsor or support legislation, take actions to encourage long-term market transformation and behavioral changes, promote water efficiency as an ongoing civic responsibility, and develop industry partnerships.

Q: How is the Water Authority protected by cost increases if the price of water can be raised by 10% each year?

Response: Under the WPA, once the price of water is set in the Agreement for the first year it can only increase by the rate of inflation and other predetermined calculations that are contractually set. It is estimated that the price will increase over time at an average of 2.5%. There is only a small set of circumstances where the price can be adjusted upward and these are all for what are termed Uncontrollable Circumstances. These include Force Majeure events that are uninsured, such as war, terrorism or earthquakes or changes in law that affect all water treatment plant operators or wastewater dischargers. In those limited circumstances the price of water can be adjusted, but no more than 10% in a single year and no more than 30% above inflation over the 30 year term of the agreement. Through these caps the Water Authority is protected from volatility in the price of the desalinated water.

Q: Why hasn't the Water Authority used the last eight to ten years of energy prices as the trend for the future?

Response: Two reasons:

1. **The long term of the Water Purchase Agreement (3 years construction plus 30 years operation) requires the Water Authority to take a long term view of electricity prices. The Water Authority considers the approximately 30-year rate history available for the SDG&E industrial tariff to be more comparable than the shorter term of the last eight to ten years.**

2. **The relatively higher electricity price escalation rate during the last eight to ten years was driven primarily by natural gas price escalation during this same period. Natural gas is an important fuel for the production of electricity, and SDG&E largely passes through the cost of natural gas to its ratepayers. The Water Authority believes that the natural gas price increase experienced during this period is unlikely to be repeated, due to structural changes in the US natural gas resource outlook.**

Comment: Indirect Potable Reuse and Direct Potable Reuse are cheaper than desalination and should be done before any desalination project.

Response: Indirect Potable Reuse (IPR) via surface water reservoirs is being evaluated by the cities of San Diego and Escondido. Two other Water Authority member agencies have explored IPR opportunities via groundwater storage. All of these potential projects are in the early planning stages and none of the four member agencies considering IPR identified projects in their individual UWMP for implementation. Direct Potable Reuse (DPR) regulations do not exist in the United States. There is only one project in the world, located in Namibia, which uses DPR. AB 2918, introduced in the California Legislature in 2012 and co-sponsored by the Water Authority, was to define a regulatory approach to DPR, but did not get voted on in the State Senate. There are currently no regulations for Indirect Potable Reuse via surface water reservoirs. Planning effort s for these types of projects are relying mostly on draft regulations for groundwater recharge and anticipated regulations for surface water augmentation. The City of San Diego's Water Purification Demonstration Project is part of an effort to work with the California Department of Public Health (CDPH) to develop specific regulations for surface water augmentation.

The city of San Diego released a feasibility study in June 2012 that evaluated development of IPR as part of a comprehensive strategy for wastewater system compliance with the Clean Water Act and production of a new, reliable, local supply. The Recycled Water Study (RWS) identified alternatives to bringing the Point Loma Wastewater Treatment plant to secondary treatment standards. The study proposed Clean Water Act compliance through a combination of new and expanded wastewater treatment plants that would also produce advance treated recycled water for conveyance as a raw water supply to surface water reservoirs owned by the city of San Diego. The capital cost estimates of the different IPR alternatives range from $1.98 billion to $3.20 billion with annual operations and maintenance costs ranging from $100 million to $155 million, not including the cost of retreatment at a surface water treatment plant. Implementation of an IRP alternative is estimated to save the Metro Wastewater System $557 million in additional capital costs by recuing the amount of wastewater treatment capacity to be upgraded to secondary standards at the Point Loma Plant and other related improvements. The IPR alternatives would also reduce operating costs at Point Loma by $27 million annually. Additional wastewater savings are possible if the City were able to achieve Clean Water Act compliance by avoiding any secondary treatment upgrades at Point Loma by remaining at Chemically Enhanced Primary Treatment. As noted by city of San Diego staff in a presentation to the Water Planning Committee on September 27, 2012, these are planning level cost estimates. Planning level cost estimates do not include the typical costs related to bond financing, therefore it is difficult to compare these estimates to the total capital cost of the Carlsbad Desalination Project which includes financing costs, reserves and capitalized interest. The Carlsbad Project also has final construction and operations pricing as part of the contractual commitment being made by Poseidon and its contractors.

The unit cost estimates for the IPR alternatives provided in the RWS deducted 20% of the capital cost for grants, assumed a portion of financing through low interest loans from the federal government and credited $275/AF for Water Authority and MWD local resources funding. Because those funding sources are uncertain and speculative, the Board has requested that for comparison purposes, local supply costs be shown prior to netting out those

types of assumed credits. Working with city of San Diego staff, the Water Authority calculated that the range of unit costs before the deduction of 20% for grants, access to low interest loans and $275/ AF for local resource program incentives was $1,975-$2, 375 per acre foot as a raw water supply. This is consistent with the unit costs for the currently suspended Santee-El Monte Basin IPR project at $2,300/AF and with the range of local supply costs being considered in San Diego County of $1,700/AF -$2,400/AF. The unit price of treated water under the proposed WPA for the Carlsbad Project will range from $2,041/AF - $2,290 /AF including all capital, operating, financing and Water Authority costs.

Comment: The California Coastal Commission is going to make the City do IPR or upgrade Point Loma to secondary, and the Water Authority needs to understand this.

Response: The Coastal Commission is responsible for making a finding whether a potential waiver to the Clean Water Act issued by the Regional Water Quality Control Board is consistent with the Coastal Zone Management Act. The California State Water Resources Control Board (SWRCB) and the US Environmental Protection Agency (USEPA) are charged in the Clean Water Act with granting waivers and defining the conditions of a waiver if granted. Seeking the waiver and agreeing to its terms and conditions will be the decision of the City of San Diego as the NPDES permit holder in cooperation with the contract agencies participating in the Metro Wastewater System. Final say on conditions and granting the waiver is the sole prerogative of the SWRCB and USEPA.

Comment: The Carlsbad Desalination plant will degrade the existing environment at Agua Hedionda Lagoon and is environmentally impactive.

Response: The presence of the desalination facility would provide long-term certainty of the ongoing stewardship of the lagoon, which for the last 60 years has been provided by the owners of the power plant. Seawater circulation throughout the outer, middle and inner lagoons is sustained both by routine dredging of the channel and outer lagoon to prevent closure, which would occur naturally in the absence of such maintenance dredging. The owner of the Encina Power Station (power plant) is currently responsible for the dredging of the lagoon. Poseidon will assume responsibility for dredging when the power plant no longer requires seawater for cooing purposes. This transition is expected to take place within the ten years.

Lagoon stewardship enhances and protects a wide range of beneficial uses. Nearly all of these uses are directly or indirectly affected by seawater flow and tidal exchange maintained through maintenance dredging. The existing cooling water flows (and/or future needs of the desalination plant) provide for fresh ocean water that renew the Lagoon's water quality and flush nutrients and other watershed pollution, particularly from the Lagoon's upper reaches. In addition, the inflow of fresh supplies of ocean water induced by the pumping and tides carry waterborne supplies of planktonic organisms that nourish the many organisms and food chains of the Lagoon, including the White Sea Bass restoration program of the Hubbs Sea World Research Institute and the aquaculture operations in the lower Lagoon.

Member Agency Board Presentations

At the request of several member agencies, staff has made presentations on the Project and the proposed WPA or has attended meetings or Member Agency Board workshops where the project has been discussed. Many of the meetings are related to member agency consideration of purchasing desalinated water from the Water Authority at full cost recovery as a local supply. The following is a list of member agency presentations through the date of the October Water Planning Committee meeting.

Member Agency	Date of presentation
Helix Water District	09/05/2012
Padre Dam Municipal Water District	10/19/2012
Ramona Municipal Water District	10/23/2012
Rincon del Diablo Municipal Water District	10/09/2012
San Dieguito Water District	09/26/2012
Santa Fe Irrigation District	08/16/2012
South Bay Irrigation District/ Sweetwater Authority	08/20/2012
Vallecitos Water District	10/08/2012
Valley Center Municipal Water District	10/01/2012
Vista Irrigation District	09/17/2012

Prepared by: Ken Weinberg, Director of Water Resources
Reviewed by: Sandra L. Kerl, Deputy General Manager
Reviewed by: Maureen A. Stapleton, General Manager